What is claimed is:

1. A method for monitoring autonomic tone of a patient, comprising:

(a) producing a photo-plethysmography signal that is representative of arterial pulse pressure of the patient; and

(b) monitoring the autonomic tone of the patient based on the photo-plethysmography signal.

2. The method of claim 1, wherein step (b) includes identifying changes in at least one of sympathetic tone and parasympathetic tone of the patient based on changes in pulse amplitude associated with the photo-plethysmography signal.

3. The method of claim 1, wherein step (b) includes:

(b.1) obtaining measures of pulse amplitude from the photo-plethysmography signal; and

(b.2) identifying changes sympathetic tone of the patient based changes in the measures of pulse amplitude.

4. The method of claim 3, wherein step (b.2) includes recognizing an increase in pulse amplitude as a decrease in the sympathetic tone of the patient.

5. The method of claim 3, wherein step (b.2) includes recognizing an increase in pulse amplitude variability as a decrease in the sympathetic tone of the patient.

6. The method of claim 3, wherein step (b.2) includes recognizing a decrease in pulse amplitude as an increase in the sympathetic tone of the patient.

7. The method of claim 3, wherein step (b.2) includes recognizing a decrease in pulse amplitude variability as an increase in the sympathetic tone of the patient.

8. The method of claim 1, wherein step (b) includes:

(b.1) obtaining measures of pulse amplitude from the photo-plethysmography signal; and

(b.2) identifying changes in parasympathetic tone of the patient based changes in the measures of pulse amplitude.

9. The method of claim 8, wherein step (b.2) includes recognizing an increase in pulse amplitude as an increase in the parasympathetic tone of the patient.

10. The method of claim 8, wherein step (b.2) includes recognizing an increase in pulse amplitude variability as an increase in the parasympathetic tone of the patient.

11. The method of claim 8, wherein step (b.2) includes recognizing a decrease in pulse amplitude as a decrease in the parasympathetic tone of the patient.

12. The method of claim 8, wherein step (b.2) includes recognizing a decrease in pulse amplitude variability as a decrease in the parasympathetic tone of the patient.

13. The method of claim 1, wherein step (a) includes using a light source and a detector, that are extravascularly implanted in the patient, to produce the photo-plethysmography signal.

14. The method of claim 1, wherein step (a) includes using a light source and a detector, that are not implanted in the patient, to produce the photo-plethysmography signal.

15. A system for monitoring autonomic tone of a patient, comprising:

a light source and a detector to produce a photo-plethysmography signal that is representative of arterial pulse pressure of a patient; and

a means for monitoring the autonomic tone of the patient based on the photo-plethysmography signal.

16. The system of claim 15, wherein the means for monitoring autonomic tone is adapted to identify changes in at least one of sympathetic tone and parasympathetic tone of the patient based on changes in pulse amplitude associated with the photo-plethysmography signal.

17. The system of claim 15, wherein the light source and the detector are incorporated into an implantable device.

18. The system of claim 15, wherein the light source and the detector are configured such that a human appendage can be placed upon the light source and the detector.

19. The system of claim 15, wherein the means for monitoring autonomic tone is adapted to recognize an increase in pulse amplitude variability as a decrease in the sympathetic tone of the patient.

20. The system of claim 15, wherein the means for monitoring autonomic tone is adapted to recognize an increase in pulse amplitude variability as a decrease the sympathetic tone of the patient.

21. A method for performing pacing interval optimization, comprising:

(a) producing a photo-plethysmography signal that is representative of arterial pulse pressure of the patient, as the patient's heart is paced using different sets of pacing interval parameters;

(b) monitoring the autonomic tone of the patient, based on the photo-plethysmography signal; and

(c) performing pacing interval optimization based on the monitored autonomic tone.

22. The method of claim 21, wherein step (c) includes selecting one of the plurality of sets of pacing interval parameters, as a preferred set, based on the monitored autonomic tone.

23. The method of claim 21, wherein:

step (b) includes obtaining measures of pulse amplitude from the photo-plethysmography signal; and

step (c) includes selecting one of the plurality of sets of pacing interval parameters, corresponding to a greatest measure of pulse amplitude, as a preferred set of pacing interval parameters.

24. The method of claim 21, wherein:

step (b) includes obtaining measures of pulse amplitude from the photo-plethysmography signal; and

step (c) includes selecting one of the plurality of sets of pacing interval parameters, corresponding to a greatest pulse amplitude variability, as a preferred set of pacing interval parameters.

25. The method of claim 21, wherein step (c) includes selecting the set of pacing interval parameters, corresponding to a minimum sympathetic tone, as a preferred set of pacing interval parameters.

26. The method of claim 21, wherein step (c) includes selecting the set of pacing interval parameters, corresponding to a maximum parasympathetic tone, as a preferred set of pacing interval parameters.

27. The method of claim 21, wherein each set of pacing interval parameters includes at least one pacing interval parameter, with an initiating event being either a delivered pace pulse or a sensed depolarization.

28. The method of claim 27, wherein each set of pacing interval parameters includes at least one of the following pacing interval parameters:

atrio-ventricular delay;

interventricular delay; and

interatrial delay.

29. The method of claim 27, wherein each set of pacing interval parameters includes a intra-chamber pacing delay.

30. The method of claim 27, wherein each set of pacing interval parameters defines pacing delays for dual-chamber pacing.

31. The method of claim 27, wherein each set of pacing interval parameters defines pacing delays for three chamber pacing.

32. The method of claim 27, wherein each set of pacing interval parameters defines pacing delays for four chamber pacing.

33. The method of claim 27, wherein each set of pacing interval parameters defines pacing delays for multi-site pacing.

34. The method of claim 21, wherein step (a) includes using a light source and a detector, that are extravascularly implanted in the patient, to produce the photo-plethysmography signal.

35. The method of claim 21, wherein step (a) includes using a light source and a detector, that are not implanted in the patient, to produce the photo-plethysmography signal.

36. A system for performing pacing interval optimization, comprising:

a pacing circuit to pace a patient's heart using different sets of pacing interval parameters;

a light source and a detector to produce a photo-plethysmography signal that is representative of arterial pulse pressure of a patient, as the patient's heart is paced using the different sets of pacing interval parameters; and

a processor adapted to monitor the autonomic tone of the patient based on the photo-plethysmography signal, and to perform pacing interval optimization based on the monitored autonomic tone.

37. The system of claim 36, wherein each set of pacing interval parameters includes at least one pacing interval parameter, with an initiating event being either a delivered pace pulse or a sensed depolarization.

38. The system of claim 37, wherein each set of pacing interval parameters includes at least one of the following pacing interval parameters:

atrio-ventricular delay;

interventricular delay; and

interatrial delay.

39. A method for performing pacing interval optimization, comprising:

(a) producing a photo-plethysmography signal that is representative of arterial pulse pressure of the patient, as the patient's heart is paced using different sets of pacing interval parameters;

(b) performing pacing interval optimization by using measures of the photo-plethysmography signal as indicators of cardiac performance.

40. The method of claim 39, wherein the measures of the photo-plethysmography comprise amplitude measures.

41. The method of claim 39, wherein an increase in pulse amplitude is recognized as an indicator of an increase in cardiac performance.

42. The method of claim 39, wherein an increase in pulse amplitude variability is recognized as an indicator of an increase in cardiac performance.

43. The method of claim 39, wherein step (a) includes using a light source and a detector, that are extravascularly implanted in the patient, to produce the photo-plethysmography signal.

44. The method of claim 39, wherein step (a) includes using a light source and a detector, that are not implanted in the patient, to produce the photo-plethysmography signal.